

Direct Testimony of John F. Finnegan
Cross Over Point
Docket No. 03-GIMT-1063-GIT

1 During Qwest's attempt to obtain Section 271 relief, I concentrated my work
2 efforts on collaborating with Qwest, CLECs and state regulators on understanding
3 and evaluating Qwest's operational support system ("OSS") and developing
4 performance measurements supporting those OSS. I was AT&T's representative
5 in the Arizona and the Regional Oversight Committee's ("ROC") OSS tests since
6 their inception. Since the issuance of the Triennial Review Order, I have been
7 concentrating my efforts on the cross over point issue that is relevant to this
8 testimony, the batch hot cut process, including participation in industry
9 workshops addressing batch hot cuts, market definition and triggers.

10 I am a frequent panelist on ROC OSS and Triennial Review Order discussions. I
11 have testified in proceedings in Kansas, Iowa, Minnesota, Arizona, Montana,
12 Wyoming, Utah, Idaho, Colorado, Washington, North Dakota, South Dakota,
13 Nebraska, Oregon, and New Mexico.

14 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

15 **A.** The purpose of my testimony is to recommend an approach the Commission can
16 use to distinguish the mass market from the enterprise market, as directed by the
17 FCC. I also conduct a quantitative analysis that results in a recommendation in
18 the number of lines that distinguish the mass market from the enterprise market
19 (the cross over point).

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1 **I. Summary**

2 **Q. WHAT IS THE CROSS OVER POINT THAT YOU RECOMMEND THIS**
3 **COMMISSION ADOPT?**

4 A. I recommend that the commission adopt a cross over point of 13 lines.

5 **Q. HOW DID YOU ARRIVE AT THIS CONCLUSION?**

6 A. I arrived at this conclusion by determining where it made economic sense for a
7 competitive local exchange carrier ("CLEC") to serve a multi-line plain old
8 telephone service ("POTS") customer using a DS1-based service. In performing
9 the analysis to arrive at that conclusion, I identified all of the costs that are
10 incurred when serving a multi-line POTS customer with a DS1-based service and
11 divided that total cost by the cost of a single UNE-P line. The result of that
12 calculation rounded up to the next whole number is the cross over point.

13 **II. Introduction**

14 **Q. PLEASE IDENTIFY THE FUNDAMENTAL CROSS OVER POINT ISSUE**
15 **THE FCC ASKED STATE COMMISSIONS TO ADDRESS.**

16 A. The FCC tasked the state commissions with determining the point where it makes
17 economic sense for a multi-line customer to be served via a DS1 loop, termed by
18 the FCC as the "cross over point."¹ The purpose of making this determination is
19 to establish when a customer would be considered a "mass market" customer as

¹ *In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, and Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket Nos. 01-338, 96-98 & 98-147, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, FCC 03-36 (released Aug. 21, 2003), ¶ 497 ("Triennial Review Order" or "TRO").

1 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

2 A. To respond to the proposal by BellSouth witness Ms. Blake regarding the
3 appropriate crossover point for use in delineating between mass market customers
4 and enterprise customers in Kentucky and to provide an alternative proposal
5 based on the general formula described by CompSouth witness Mr. Gillan.

6 **Q HOW IS YOUR TESTIMONY STRUCTURED?**

7 A. I will first address the BellSouth proposal and how it fails to consider the
8 direction given by the FCC with regard to the calculation of a crossover point. I
9 will then review the formula described by CompSouth's Mr. Gillan in his direct
10 testimony. Consistent with this formula, I will then propose a more suitable
11 crossover point. Finally, I will describe the calculation, which utilizes a model
12 introduced by Sprint in the state of Florida for the purpose of calculating the
13 crossover point, utilizing Kentucky specific inputs.

14
15 **Q. AT PAGE 8, LINES 12 THROUGH 18, BELLSOUTH WITNESS BLAKE**
16 **INDICATES THAT THE APPROPRIATE CROSSOVER POINT WITH**
17 **WHICH TO DELINEATE BETWEEN "MASS MARKET" AND**
18 **"ENTERPRISE" CUSTOMERS IS "THREE OR FEWER DSO LINES."**
19 **DO YOU AGREE?**

20
21 A. No. As explained in the direct testimony of CompSouth's Mr. Gillan, the
22 calculation of a crossover results in establishment of the upper boundary of the
23 mass market in terms of the number of voice lines a customer may have before
24 the customer should be viewed as an enterprise customer. Ms. Blake's suggestion

1 that a crossover point of three lines is appropriate fails to consider the FCC's
2 primary direction that a crossover calculation consider the point at which it is
3 more economical for a customer to be served with a DS1 instead of multiple DS0
4 loops.

5
6 In fact Ms. Blake misquotes the FCC's Order in this regard. Citing to ¶497 of the
7 TRO, Ms. Blake indicates that the FCC's direction is "to define the cross-over
8 point as 'where it makes sense for the multi-line customer to be served via a DS1
9 loop.'" The FCC's actual direction is clear when ¶497 is cited accurately:

10 "This cross over point may be the point where it makes economic sense
11 for a multi-line customer to be served via a DS1 loop." [emphasis added]
12
13
14 Failure to consider the point at which it makes more "economic sense" to serve a
15 customer with a DS1 rather than multiple DS0s does not comply with the
16 direction given by the FCC.

17
18 Q. **IN MR. GILLAN'S DIRECT TESTIMONY, BEGINNING AT PAGE 24,**
19 **LINE 11 THROUGH PAGE 25, LINE 8, HE DESCRIBES A GENERAL**
20 **FORMULA WITH WHICH AN ECONOMIC CROSSOVER POINT**
21 **COULD BE CALCULATED. PLEASE SUMMARIZE THIS FORMULA.**

22
23 A. CompSouth's witness Mr. Gillan proposes, and, as a member of CompSouth,
24 AT&T supports, a "straightforward calculation" whereby the cost of a UNE DS1
25 is compared to the cost of multiple UNE analog loops in order to make a
26 determination as to when, in terms of the number of UNE analog loops, it is more

1 economical to serve a customer with a DS1. The cost of a UNE DS1 must also
2 include the customer premise equipment that is required to utilize DS1 service as
3 well as all the costs of non-recurring activities and installation of such equipment.

4
5 CompSouth's Mr. Gillan illustrates the calculation as follows:

6
7
$$\text{Crossover} = \frac{(\text{CPE} + \text{UNE DS-1})}{\text{UNE Loop}}$$

8
9

10 The costs, recurring and non-recurring, associated with acquiring the UNE DS-1
11 and UNE Loop facilities from the incumbent must be included in the calculation.

12
13 The use of such a formula will result in the determination of the number of analog
14 lines at which it is more economical to serve a customer with a DS1, which is the
15 crossover point. AT&T, as a member of CompSouth, supports CompSouth's
16 proposed approach.

17
18 **Q. DOES COMPSOUTH'S WITNESS DISCUSS OTHER FACTORS THAT**
19 **COULD BE APPROPRIATE TO CONSIDER IN THIS ANALYSIS?**

20
21 **A.** Yes. At page 25, lines 8 through 14, CompSouth's Mr. Gillan explains that the
22 above formula could be made more complicated by including other costs that
23 would be incurred with the use of UNE-L. "... (such as collocation and backhaul)
24 that are not incurred to use UNE-P." AT&T agrees with CompSouth's Mr. Gillan
25 that there are additional costs that could be added to the analysis however, as a

1 member of CompSouth, AT&T supports the straightforward approach and
2 formula proposed by CompSouth's Mr. Gillan.

3
4 **Q. IN KENTUCKY, WHAT IS THE APPROPRIATE CROSSOVER FOR**
5 **MULTI-LINE ANALOG LOOP CUSTOMERS WHERE IT BECOMES**
6 **MORE ECONOMIC TO SERVE A MULTI-LINE CUSTOMER WITH A**
7 **DS1?**

8
9 A. Exhibit MEA-I, attached to my testimony, calculates the average economic
10 crossover a competitive local provider would experience in serving an analog
11 customer in the BellSouth territory within the state of Kentucky based on the
12 *number of analog voice lines used by the customer.*

13
14 The results of this calculation indicate that, up to 13 DS0s at a customer's
15 location, purchasing individual loops is more cost effective or economic than
16 purchasing a single DS1.

17
18 **Q. WHAT IS THE SOURCE OF THIS CALCULATION?**

19
20 A. Sprint Communications, in Florida, filed a model that calculated an economic
21 crossover specific to the State of Florida.¹ This same model has been populated
22 with some Kentucky specific inputs and now calculates a specific and reasonable
23 economic crossover point for Kentucky, which is consistent with the economic
24 crossover calculation proposed above.

25

¹ Direct Testimony of Kent W. Dickerson, Docket No. 030851-TP, filed December 4, 2003.

1 **Q. WHY DO YOU FIND SPRINT'S MODEL A REASONABLE METHOD**
2 **FOR THE DETERMINATION OF THE ECONOMIC CROSSOVER**
3 **POINT BETWEEN MASS MARKET AND ENTERPRISE CUSTOMERS?**

4
5 A. Sprint is an established ILEC with significant experience in providing service to
6 both multiple DS0 served customers as well as DS1 served customers. Their
7 experience and related data provide a reasonable proxy for the circumstances that
8 would be faced by a CLEC in Kentucky. Further, their model is consistent with
9 the general calculation described by CompSouth witness Gillan in his direct
10 testimony and summarized above.

11
12 **Q. WHAT ARE THE COST COMPONENTS IN THE ECONOMIC COST**
13 **CROSSOVER MODEL FOR THE PROVISION OF SERVICE OVER A**
14 **DS1 FACILITY?**

15
16 A. This model includes the monthly recurring charges of the unbundled network
17 element DS1 loops, the unbundled network element non-recurring charges for
18 DS1 loops, and the monthly costs of a channel bank installed at the customer's
19 premises used to multiplex multiple voice channels onto a DS1 loop facility.

20
21 **Q. WHAT ARE THE COST COMPONENTS IN THE ECONOMIC COST**
22 **CROSSOVER MODEL FOR THE PROVISION OF SERVICE OVER A**
23 **DS0 FACILITY?**

24
25 A. The model includes the monthly recurring charges of the unbundled network
26 element DS0 loops and the non-recurring charges for unbundled network element

1 DS0 loops. The non-recurring charges reflect the charges for the initial DS0 loop
2 and each additional loop ordered.

3
4 **Q. WHAT ARE THE SOURCES OF UNBUNDLED NETWORK ELEMENT**
5 **PRICES FOR THE MONTHLY RECURRING SERVICES AND THE**
6 **NON-RECURRING SERVICES?**

7
8 A. All unbundled network element prices are those approved by the Kentucky Public
9 Service Commission in Case No. 2001-105.

10
11 **Q. WHAT IS THE SOURCE OF THE ACCESS LINE DATA USED TO**
12 **DETERMINE THE WEIGHTED AVERAGE UNE PRICES?**

13
14 A. The access line data are from the FCC's HCPM (Hybrid Cost Proxy Model) that
15 provided lines by wire center as of 2000.

16
17 **Q. WHAT ADDITIONAL VARIABLES ARE INCLUDED IN THE**
18 **CALCULATIONS?**

19
20 A. A weighted average cost of capital input is used for amortizing the non-recurring
21 charges. This weighted average cost of capital is 13.07%. This utilizes the cost
22 of capital calculated by the FCC in the recent Verizon-Virginia WorldCom
23 Arbitration Order.²

24

² CC Docket No. 00-218, In the Matter of Petition of WorldCom, Inc. Pursuant to Section 252(e)(5) of the Communications Act for Preemption of the Jurisdiction of the Virginia State Corporation Commission Regarding Interconnection Disputes with Verizon Virginia, Inc., and for Expedited Arbitration, Memorandum Opinion and Order, August 29, 2003.

1 **Q. HOW ARE THE NON-RECURRING UNBUNDLED NETWORK**
2 **ELEMENT COSTS TREATED IN THE ECONOMIC CROSSOVER**
3 **ANALYSIS?**

4
5 A. The non-recurring unbundled network element charges for establishing DS0 or
6 DS1 services are amortized over a 24 month period using the weighted cost of
7 capital. In this model the assumption is a 24 month average customer life.

8
9 **Q. HOW IS THE MONTHLY COST OF THE CHANNEL BANK AT A DS1**
10 **CUSTOMER PREMISES CALCULATED?**

11
12 A. The monthly cost of the equipment is calculated by dividing the total material cost
13 over the life of the asset, accounting for the cost of capital, nine year depreciation
14 life, income tax, maintenance, and sales tax of 7 percent.

15
16 Material prices reflect the size of the channel bank and cards that would be
17 installed at a customer premises capable of multiplexing one DS1 into DS0s. The
18 material was then amortized. Labor related to the installation of the customer
19 premises channel bank was amortized over 24 months.

20
21 **Q. HOW ARE THESE COST COMPONENTS USED TO CALCULATE AN**
22 **AVERAGE CROSSOVER BETWEEN UNBUNDLED DS0 AND DS1**
23 **LOOPS WITHIN BELL SOUTH'S TERRITORY?**

24
25 A. The Sprint model calculates the UNE provisioning costs of both DS0 and DS1
26 facilities as described above for each central office in the state of Kentucky served

1 by BellSouth. A weighted average cost for each MRC and NRC is computed by
2 multiplying the central office specific result by the percentage of access lines in
3 that central office. The weighted average cost of a DS1 loop is then divided by
4 the weighted average cost of a DS0 loop.

5

6 **Q. WHAT IS THE ECONOMIC CROSSOVER RESULT PRODUCED IN**
7 **THE MODEL?**

8

9 A. The model results indicate that, for up to 13 DS0s at a customer's location,
10 purchasing individual loops is more cost effective, or economic, than purchasing a
11 single DS1. Above 13 DS0s, the DS1 becomes the more cost effective means of
12 providing service to the customer.

13

14 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

15

16 A. Yes.

KPSC Case No. 2003-00379
 Rebuttal Testimony of Mark Argenbright
 Exhibit MEA-1
 March 31, 2004

**TRO Economic Business Case
 DS0 to DS1 Cross Over**

State = KY
 Company = BellSouth

A	B	C	D	E	F
Row	Description	DS1 + Channel Bank	DS0	Cross-Over DS0 Quantity	Cross-Over Rounded DS0 Quantity
10	Weighted Average				
11	MRC	\$188.93	\$17.57		
12	NRC - Ammortized	\$41.66	\$1.19		
13	Total	\$230.59	\$18.76	12.29	13
14					

KPSC Case No. 2003-00379
 Rebuttal Testimony of Mark Argenbright
 Exhibit MEA-1
 March 31, 2004

1 Inputs

3	Assumed Term	
4	Months - MRC	1
5	Channel Bank (CB)	
6	MRC per DS1	\$38.02
7	Assumed Term	
8	Months - NRC	24
9	Cost of Capital	
10		13.07%
11	Add'l NRC DS0 Quantity	
12	Number of DS0s	12

15	UNE DS0 Loop MRC Rates				
16	State	Zone	BS	ILEC	ILEC
17	Kentucky	1	\$10.56	\$0.00	\$0.00
18		2	\$15.34	\$0.00	\$0.00
19		3	\$31.11	\$0.00	\$0.00
20		4	\$0.00	\$0.00	\$0.00
21	Weighted Average		\$17.57		

24	UNE DS1 Loop MRC Rates				
25	State	Zone	BS	ILEC	ILEC
26	Kentucky	1	\$86.47	\$0.00	\$0.00
27		2	\$114.10	\$0.00	\$0.00
28		3	\$297.76	\$0.00	\$0.00
29		4	\$0.00	\$0.00	\$0.00
30	Weighted Average		\$188.93		

33	UNE DS0 Loop NRC Rates				
34	State	Description	BS	ILEC	ILEC
35	Kentucky	NRC-First	\$46.66	\$0.00	\$0.00
36		NRC-Additional	\$22.57	\$0.00	\$0.00
37		S.O.-First	\$7.88	\$0.00	\$0.00
38	Weighted Average		\$25.03		

41	UNE DS1 Loop NRC Rates				
42	State	Description	BS	ILEC	ILEC
43	Kentucky	NRC-First	\$306.69	\$0.00	\$0.00
44		NRC-Channel Bank	\$561.13	\$0.00	\$0.00
45		S.O.-First	\$7.88	\$0.00	\$0.00
46	Weighted Average		\$875.70		

* CLEC cost to install the channel bank at customer premises.

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BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS
PUBLIC UTILITY COMMISSION
FILING CLERK

DOCKET NO. 28607

IMPAIRMENT ANALYSIS OF LOCAL § PUBLIC UTILITY COMMISSION
CIRCUIT SWITCHING FOR THE § OF TEXAS
MASS MARKET §

DIRECT TESTIMONY OF

STEVEN E. TURNER

ON BEHALF OF

AT&T COMMUNICATIONS OF TEXAS, L.P.,

TCG DALLAS AND

TELEPORT COMMUNICATIONS HOUSTON, INC.

February 9, 2003

1 “compares the cost of a UNE-L-based serving arrangement with the revenue stream a
2 CLEC could reasonably anticipate when serving residential customers.”²⁸

3 In its *ex parte* SBC identified a series of cost categories that CLECs might incur in
4 using UNE-L to serve residential customers that would not also be incurred by ILECs.
5 These include:

- 6 • payments by CLECs to ILECs for hot cuts (SBC appears, however, to have
7 excluded internal CLEC costs that would be incurred to implement the hot
8 cut process);²⁹
- 9 • the costs of collocation;³⁰
- 10 • the costs of GR-303 concentration and multiplexing equipment;³¹ and
- 11 • transport costs.³²

12 These are the very same cost elements that are reflected in the tools and calculations that I
13 discuss below.

14 For the three states that SBC analyzed, *i.e.*, California, Michigan and Texas, SBC
15 developed estimated cost differentials that totaled respectively \$10.74, \$10.88 and \$10.74
16 per line for these cost components for a central office in which a CLEC would serve 250
17 lines; and \$9.00, \$7.85 and \$8.80 per line, respectively, for these cost components for a
18 central office in which a CLEC would serve 500 lines.³³ Thus, SBC’s own analysis

²⁸ *Id.*, p. 1.

²⁹ *Id.*, p. 3. The TRO indicates that these internal CLEC costs should be included in any quantification of the costs a CLEC would face to utilize a UNE-L strategy. See TRO at n. 1498.

³⁰ *Id.*, pp. 4-5.

³¹ *Id.*, p. 5.

³² *Id.*, p. 7.

³³ See Exhibit SET-11, February 4, 2003 Ex Parte letter from Joan Marsh, AT&T Director of Federal Government Affairs, to Ms. Marlene Dortch, Secretary, Federal Communications Commission in CC Docket Nos. 01-338, 96-98, and 98-147, page 3.

1 presented to the FCC shows that the cost disadvantage faced by a CLEC – essentially the
2 same cost disadvantage discussed in my testimony – is substantial. This analysis is also
3 noteworthy because it shows that a 100 percent increase in lines served results in only a
4 16 percent decrease in impairment.

5 **Q. PLEASE SUMMARIZE THE ISSUES YOU ADDRESS IN YOUR TESTIMONY**
6 **ABOVE.**

7 **A.** The critical issue to be considered in this proceeding is not whether CLECs can “deploy”
8 their own switches. Instead, the critical issue upon which this Commission should focus
9 is whether CLECs can “efficiently use” their own switch to connect to the local loops of
10 end users to provide a competitive service. The differences in the way end users’ loops
11 are connected to carriers’ switches are among the most important factors that cause
12 CLECs to face substantial operational and economic entry barriers when they seek to
13 offer POTS to mass-market (residential and small business) customers using their own
14 switches and ILEC-provided loops (*i.e.*, UNE-L facilities-based entry). The barriers to
15 which I refer relate primarily to the requirement that CLECs must backhaul UNE-L traffic
16 from the customer’s serving ILEC wire center to the CLEC switch.

17 **V. DS0 CROSS OVER POINT**

18 **A. THE DIFFERENCE BETWEEN THE MASS MARKET AND THE**
19 **ENTERPRISE MARKET**

20 **Q. WHY MUST THE COMMISSION ADDRESS THE CROSS OVER POINT AS**
21 **YOU RECOMMEND?**

22 **A.** In the *TRO*, the FCC directed that state commissions must “determine the appropriate cut-
23 off for multi-line DS0 customers as part of [their] more granular review” of the economic

1 and operational analyses around impairment.³⁴ This cut-off is what I previously referred
2 to as the cross over point.

3 **Q. PLEASE EXPLAIN IN MORE DETAIL WHAT YOU MEAN BY THE TERM**
4 **"CROSS OVER?"**

5 A. The "cross over" is the point at which the mass market ends and the enterprise market
6 begins for the purpose of the impairment analysis prescribed by the FCC. The FCC said
7 that "mass market customers are analog voice customers that purchase only a limited
8 number of POTS lines, and can only be economically served via DS0 loops."³⁵ It found
9 that "at some point, customers taking a sufficient number of multiple DS0 loops could be
10 served in a manner similar to that described above for enterprise customers."³⁶ That point
11 is the cross over point.

12 **Q. WHAT ARE SOME PRIMARY CHARACTERISTICS OF MASS MARKET**
13 **CUSTOMERS?**

14 A. The mass market customer base is: (a) primarily interested in basic voice POTS service;³⁷
15 (b) widely geographically dispersed;³⁸ and (c) unaccustomed to complex or disruptive
16 provisioning schemes.³⁹ Mass market customers are not located exclusively in
17 concentrated geographic locations such as central business districts; both residential and
18 small business customers are located across all urban, suburban, and rural locations.
19 These customers expect that using their telephone services, as well as changing service

³⁴ TRO, ¶ 497.

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*, ¶ 205.

³⁹ *Id.*, fn. 716.

1 providers, should not be a complicated transaction. As the FCC described it, “mass
2 market customers demand reliable, easy-to-operate service and trouble-free installation.”⁴⁰

3 **Q. HOW DOES AN ENTERPRISE CUSTOMER DIFFER FROM A MASS MARKET**
4 **CUSTOMER?**

5 A. Enterprise customers demand a level of service and capacity, particularly for data
6 services, quite different from that required by mass market customers. As the FCC put it,
7 “DS1 enterprise customers are characterized by relatively intense, often data centric,
8 demand for telecommunications services sufficient to justify service via high-capacity
9 loops at the DS1 capacity and above.”⁴¹ Enterprise customers also require more
10 sophisticated sales and technical support than mass market customers.

11 **Q. WHAT IS THE PRACTICAL IMPLICATION OF THE CROSS OVER POINT?**

12 A. If the Commission decides to use a cost-based approach for identifying enterprise
13 customers, the cross over point is a line threshold over which ILECs are relieved of their
14 obligation to provide unbundled local switching to an individual customer location. In
15 essence, this means that the cross over point identifies the line threshold over which a
16 CLEC cannot serve customers using UNE-P.

17 **Q. DID THE FCC PROVIDE ANY GUIDANCE AS TO HOW THE CROSS OVER**
18 **POINT SHOULD BE DETERMINED?**

19 A. Yes. The FCC said that the “cross over point *may* be the point where it makes economic
20 sense for a multi-line customer to be served via a DS1 loop.”⁴² I emphasize the word
21 “may” here because the FCC’s guidance is just that – guidance. The FCC did not
22 mandate any particular formula or methodology for determining the cross over point and

⁴⁰ *Id.*, ¶ 467.

⁴¹ *Id.*, ¶ 451.

1 there are many things – for example, consumer preferences – that the Commission may
2 want to take into account in addition to the basic cost analysis. For the purpose of
3 developing my recommendation in this proceeding, however, I have undertaken the
4 analysis from a cost perspective and identified the point where a customer can be more
5 efficiently served via DS1 loops than by plain voice grade analog loops.⁴³

6 **Q. HOW DOES CONSUMER PREFERENCE PLAY INTO THIS ISSUE?**

7 A. In my experience, customers may not particularly care about the specific economic
8 tradeoffs that we are able to evaluate in these regulatory proceedings. I have personally
9 interacted with retail local service customers that had large numbers of 2-wire analog
10 loops (in excess of 20) and simply did not want to change the structure of their service
11 even though the CLEC that I owned would be able to provide the customer with less
12 costly service using a DS1. The customer knew that its current line configuration worked
13 and it simply did not want to introduce yet another layer of confusion into a migration
14 from SBC to a CLEC. Moreover, a change from 2-wire analog loops to a DS1
15 connection requires either that the customer alter the equipment configuration that it has
16 purchased (normally a key system) or that the CLEC deploy a new piece of equipment (a
17 channel bank). Customers are certainly not willing to pay for such changes themselves,
18 and they may not want to introduce these complexities into their operations. At the most
19 simple level, customers are not trying to be experts in telecommunications. They want

⁴² *Id.*

⁴³ While my analysis focuses on CLEC cost, there may be other, non-cost factors distinguishing mass market customers from enterprise customers. Small business customers that have grown their business over time, for example, may be reluctant to switch to DS1 technologies even if they are being served by a number of voice grade loops in excess of the cross over number. The application of a rigid, numerical cross over point would require a CLEC trying to get that customer's business to (a) leave the ILEC, and (b) implement an entirely new technology with which the customer may not be comfortable. It is not likely a CLEC could overcome both barriers.

1 service that works for them. They are trying to run doctor's offices, pizza parlors,
2 churches, and the like. If they decide that the best way to connect to their office is
3 through the purchase of 2-wire analog lines, a precise economic tradeoff calculation that
4 can be made by experts will not change that choice for the customer.

5 **Q. WHAT THEN IS THE PRACTICAL IMPLICATION OF THIS ECONOMIC**
6 **TRADEOFF?**

7 A. If the Commission implements a definitive number of lines that requires that the customer
8 be treated as an "enterprise" customer, it will have the practical impact of limiting choice
9 for these customers. In other words, because of the customer's choice of how they want
10 to have service provided to them, it could have the effect (if the Commission implements
11 a hard cross over value) of limiting the choice for these customers as to who can provide
12 them with service. The practical advice that I would provide to this Commission is to
13 ultimately allow the customer to decide whether they are an enterprise customer or not. If
14 the customer elects to use a DS1 connection into his location, then he would be an
15 enterprise customer. If the customer elects to use 2-wire analog loops to connect into
16 their location, then he should be designated as a "mass market" customer.

17 That said, because of the requirements outlined in the FCC's TRO, I have still
18 calculated a DS0 cross over value. However, I would ultimately encourage the
19 Commission not to order this value for application in the market, because it will only
20 have the end result of hurting customers by limiting their competitive choice.

21 **Q. WHAT IS THE CROSS OVER POINT THAT YOU RECOMMEND THIS**
22 **COMMISSION ADOPT FOR THE PURPOSES OF THE ECONOMIC**
23 **EVALUTION?**

24 A. I recommend that the commission utilize a cross over point of 13 lines for the SBC
25 service territory.

1 **Q. HOW DID YOU ARRIVE AT THIS VALUE?**

2 A. My conclusion is based on my identification of the costs incurred when serving a multi-
3 line POTS customer with a DS1 based service, divided by the cost incurred when serving
4 a single POTS customer when using UNE-P. In other words, I determined how many
5 UNE-P lines could be provisioned to one customer before it becomes more cost efficient
6 to serve that customer using a DS1 loop.

7 The calculations I performed to reach these cross over numbers, and the work
8 papers supporting those calculations, are attached as Exhibit SET-12.

9 **Q. WHAT ARE THE SIGNIFICANT DIFFERENCES IN COSTS BETWEEN A UNE-**
10 **P SERVICE AND A DS1 SERVICE?**

11 A. The costs to provision DS1 service at a location are characterized by monthly recurring
12 costs and substantial, upfront non-recurring and investment costs that are generally not
13 dependent upon the number of lines served at the customer's location. That is because it
14 generally costs a CLEC about the same to serve a customer with a DS1 based service
15 whether the customer has one line or twenty-four lines.⁴⁴ In contrast, a CLEC's costs to
16 order and provision UNE-P services include little investment or upfront non-recurring
17 costs. The CLEC's monthly recurring costs are directly related to the number of loops
18 served at a location. For example, if the ILEC's rate for a UNE-P service is \$20 per line
19 per month, then the total monthly cost to serve a customer with five lines is
20 approximately \$100.

⁴⁴ A DS1 loop can serve up to 24 voice grade equivalents.

1 **Q. DO THE RELATIVE NETWORK ARCHITECTURES OF UNE-P AND DS1**
2 **SERVICE ALSO AFFECT THE COSTS USED IN THE ANALYSIS?**

3 A. Yes. To understand the analysis, one must first understand, at a high level, the UNE-P
4 and DS1 network architectures. The network architecture assumptions I rely on in my
5 analysis are based on the general network architecture testimony provided earlier.

6 **Q. PLEASE DESCRIBE THE NETWORK ARCHITECTURE FOR UNE-P.**

7 A. The network architecture for UNE-P is the same simple, POTS architecture that ILECs
8 use to provide retail service to their own end users. To obtain service, a customer with
9 one or more telephone lines merely plugs its analog telephone sets into wall jacks. Each
10 jack will be associated with one or two of the customer's telephone numbers. The wall
11 jacks are connected to the customer's inside telephone wire. The inside wire for a
12 premises terminates at the customer's network interface device ("NID"). For a residential
13 customer, the NID is generally located on the side of the customer's house. For small
14 business customers, the NID can be located on the side of the customer's building or
15 inside the customer's building in some type of equipment closet. For each POTS line at a
16 customer's location, an ILEC twisted copper loop is connected to the NID. At the other
17 end, that loop terminates at the ILEC's serving wire center where it is generally connected
18 to the ILEC switch. The copper loop carries the electrical current necessary to ring the
19 customer's telephone when an incoming call is received and to provide loop current when
20 the customer attempts to make a call.⁴⁵ Because the electrical current required to make

⁴⁵ If the customer's copper loop is connected directly to the circuit switch, the switch will provide the loop current, ringing voltage, and dial tone. If the customer's loop has multiplexing equipment in the loop, the multiplexing equipment provides the loop current and ringing voltage.

1 and receive telephone calls is provided over the copper loop, a customer's telephone
2 service will operate even when the customer has experienced an electrical power outage.

3 Thus, in its simplest form, each telephone line has its own separate connection
4 from the customer's premises to the local circuit switch serving that customer. For
5 example, a customer with eight POTS lines will likely have eight separate loop
6 connections to the local circuit switch serving those lines.

7 **Q. DOES A UNE-P ARCHITECTURE REQUIRE THE CLEC TO MAKE ANY**
8 **INVESTMENT IN CUSTOMER PREMISES EQUIPMENT ("CPE") OR**
9 **NETWORK EQUIPMENT?**

10 **A.** Generally speaking, no.

11 **Q. PLEASE DESCRIBE THE NETWORK ARCHITECTURE FOR THE DS1**
12 **SERVICE.**

13 **A.** In contrast to a POTS customer, a DS1 customer requires special equipment at the
14 customer's premises to aggregate the multiple telephone lines onto a single connection (a
15 DS1-capable loop) from the customer's premises to the switch.

16 Specifically, a DS1 loop requires that the signals from all of the customer's analog
17 lines must be converted into digital signals and then multiplexed using channel bank
18 equipment. Further, DC battery back up is required at the customer's premises to provide
19 continuous service during power interruptions. Both of these pieces of equipment require
20 that a technician visit the customer's premises to connect the DS1 service.

21 A CLEC providing DS1 services will purchase the DS1 loop from the ILEC,
22 which provides the connection between the customer's premises and the ILEC central
23 office. The CLEC will also pay the non-recurring charges for cross connecting the loop
24 between the ILEC's DSX-1 panel and the CLEC's collocation space. The CLEC will
25 also require multiplexing functionality in its collocation space to consolidate individual

1 DS1 loops onto a higher capacity DS3 transport facility connecting the collocation to the
2 CLEC switching node. A complementary function is required at the CLEC switch node
3 to de-multiplex the DS1s embedded in the DS3 transport. Finally, the DS3 circuit at the
4 collocation space would be backhauled from the ILEC central office to the CLEC's local
5 switch location and terminate at the CLEC's switch.

6 **Q. PLEASE SUMMARIZE THE TYPES OF COSTS YOU HAVE CONSIDERED IN**
7 **YOUR ANALYSIS.**

8 A. The relevant comparison for this analysis is a comparison of the cost to the CLEC of
9 providing service using multiple UNE-P lines to its cost of providing service using a DS1
10 UNE loop, including the additional costs incurred by the CLEC to enable the DS1 service
11 to function the same as POTS. To simplify the analysis, however, I have assumed that
12 the multiple costs faced by both CLECs and ILECs to provide switching, interconnection,
13 signaling, and related operational support systems are equivalent and therefore not
14 included in my analysis. In other words, I have not attempted to calculate the specific
15 costs of CLEC switches (along with customer demand forecasts), interconnection, and
16 associated network costs in performing my analysis.⁴⁶

17 Generally speaking, my analysis considered the following types of costs: 1) CPE
18 investments, including channel bank and backup power equipment, 2) recurring DS1 loop
19 costs; 3) non-recurring costs associated with provisioning a DS1 service, 4) multiplexing
20 equipment at the CLECs collocation space and at the CLEC switch; and 5) backhaul

⁴⁶ For example, if one assumes that the relative costs of switching, signaling, and transport are similar between a CLEC and an ILEC, there is no significant cost differential between serving 13 POTS lines and a DS-1 with 13 voice grade lines. Further, there is no need to specifically quantify and account for usage calculations in arriving at a composite UNE-P rate.

1 costs. In addition, my calculations are specific to SBC where appropriate. For example,
2 the UNE-L rates I used are the current Commission-approved rates specific to SBC.

3 **Q. DID THE FCC REACH ANY CONCLUSIONS ON DISTINGUISHING THE**
4 **MASS FROM THE ENTERPRISE MARKET BEFORE THE TRO?**

5 A. Yes, it did. The FCC previously found in its *UNE Remand Order*⁴⁷ that if a customer had
6 four or more lines at a single customer location in density zone 1 in one of the top 50
7 MSAs and the ILEC had provided non-discriminatory, cost-based access to the enhanced
8 extended link ("EEL") throughout the density zone, then the ILEC had no obligation to
9 provide unbundled local switching.⁴⁸ However, that conclusion did not apply in other
10 than the top 50 MSAs or in density zones other than zone 1 in the top 50 MSAs. This
11 finding has become known as the "three line limit" or the "switching carve-out."

12 **Q. WHAT FACTS DID THE FCC RELY ON IN SETTING THE "THREE LINE**
13 **LIMIT"?**

14 A. The FCC concluded, "exempting incumbent LECs from unbundling local circuit
15 switching in certain circumstances in the top 50 MSAs is reasonable because nearly all of
16 the top 50 MSAs contain a significant number of competitive switches."⁴⁹ However, the
17 FCC did not provide any meaningful explanation as to how that finding translated into a
18 three line (or any specific line) limit. Indeed, in his Separate Statement, Commissioner
19 Harold Furchtgott-Roth pointed out the absence of evidence supporting a three-line limit
20 when he stated:

21 We have before us no clear evidence that there are material,
22 switching-related differences in the cost of serving customers with

⁴⁷ Third Report and Order and Fourth Further Notice of Proposed Rulemaking, In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996 (CC Docket No. 96-98), FCC No. 99-238 (Rel. November 5, 1999) (the "UNE Remand Order").

⁴⁸ UNE Remand Order, ¶ 278.

⁴⁹ *Id.*, ¶ 281.

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY

OF

KENT W. DICKERSON

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5
6
7 **Q. Please state your name, business address, employer and current position.**

8 **A.** My name is Kent W. Dickerson. My business address is 6450 Sprint Parkway,
9 Overland Park, KS 66251. I am employed as Director - Cost Support for
10 Sprint/United Management Company.
11

12 **Q. Please summarize your qualifications and work experience.**

13 **A.** I received a Bachelor of Science degree from the University of Missouri - Kansas
14 City in 1981 with a major in Accounting. In 1984, I passed the national exam and
15 am a Certified Public Accountant in the State of Missouri.
16

17 From 1981 to 1983, I was employed as a Corporate Income Tax Auditor II for the
18 Missouri Department of Revenue. From 1983 to 1985, I worked for Kansas Power
19 and Light (now Western Resources) in the Tax and Internal Audit areas. I joined
20 United Telephone Midwest Group in September, 1985 as a Staff Accountant in
21 the Carrier Access Billing area. Thereafter, I moved through a progression of
22 positions within the Toll Administration and General Accounting areas of the
23 Finance Department.
24

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